which the plates of epiphyseal cartilage can be preserved, shortening likewise occurs; this latter resulting, not from the operation, but from the damage which the tuberculous process in the neighborhood of the epiphysis has inflicted upon the latter by interfering with its proper blood supply.

To sum up, therefore:

First. Observation and clinical experience show that tuberculous inflammation within or in the neighborhood of the knee joint, in children, leads to relative shortening of the limb, through interference with the blood supply to the epiphyseal cartilages.

Second. The amount of shortening of the limb present, when the patient reaches his full growth, will depend upon the extent to which the epiphyseal cartilages have been damaged and its bone-forming function destroyed by the presence of the tuberculous disease.

Third. Resection of the knee-joint in growing individuals is followed by relative shortening of the limb only in proportion as the line of the epiphysis has been invaded by the disease. The extent of the disease is the only guide for the surgeon to follow in determining the amount of tissue to be removed. Those cases in which the epiphysis is spared, and in which the ultimate relative shortening is found to be considerable, are cases in which the damaging effects of the disease are responsible for the functional disability, and not the operation.

Fourth. Resection of the knee-joint in children is justifiable. Attempts to preserve the epiphyseal cartilages where the latter are actually invaded by the tuberculous process can hold out no hope of lessening the ultimate relative shortening, and will almost certainly lead to a recurrence of the disease and the necessity for final amputation.

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THE TREATMENT OF GANGRENOUS HERNIA AND ARTIFICIAL ANUS[1]

This question of the treatment of the intestine in a gangrenous her-

[1] A Comparison of Old and New Methods in the Treatment of Gangrenous Hernia and Artificial Anus. By Dr. W. KORTE (Berlin).—*Deutsche Med. Wochenschrift*, No. 41, 1888.

nia has not yet been settled. Primary resection and suture of the intestine has been proposed, abandoned and taken up anew; but many surgeons still prefer forming an artificial anus.

For the cure of artificial anus two methods are employed, secondary resection and suture of the intestine, and the old method of treatment, according to Dupuytren and Dieffenbach, known as the treatment by clamp. The author has collected, from various sources, 111 cases of artificial anus treated by the enterotome, with 11 deaths, 4 of which were due to intercurrent diseases.

There is yet another set of cases reported where the perviousness of the intestine was not restored, although treated by the clamp, and where secondary resection and suture of the intestine was resorted to. All these cases prove that the treatment by the enterotome is not very dangerous, but that it does not give a good result in every case.

The result of the 111 tabulated cases requires further consideration; under care it is understood that the perviousness of the gut was restored and the fæces were passed per anum. In 30 cases fistulæ remained, and either the patients were satisfied with the result or the surgeons did not dare to attempt any further operation. Of the 11 deaths 5 were due directly to the clamp treatment; 4 patients died from peritonitis and 1 from pyæmia. One patient died of marasmus and 5 from intercurrent diseases at a more or less advanced period of treatment. Dupuytren's method, owing to its long duration, the disturbances of nutrition, soiling of the wound by fæces, render the patients an easier prey to intercurrent diseases than the quick methods of cure. Most of the 111 tabulated cases were treated in the preantiseptic days.

The enterotome in itself is not a dangerous proceeding, but only in this wise must one judge of Dupuytren's method.

If a parallel is to be drawn between the clamp treatment and primary resection and suture of the intestine, it is necessary to consider all causes of deaths, and not to count only those cases who have escaped the dangers attending the formation of an artificial anus, and then cured of this condition by the use of the enterotome and the subsequent closure of the fistula, but also those cases must be considered

which died before, either as a result of exhaustion, peritonitis, phlegmon of the abdominal wall or inanition.

Both operations have their special dangers; those of primary resection and suture are shock from the serious and prolonged operation, infection of the abdominal cavity either from a poorly applied suture or from the gangrenous gut; while in the formation of an artificial anus, when the primary dangers are passed, we have those resulting from the present condition, namely phlegmon of the abdominal walls and disturbances of nutrition, before the real, and in itself, not very dangerous, treatment by clamp can be begun.

Of 28 cases of gangrenous hernia, collected in Bethonien Hospital and treated by the formation of an artificial anus, 10 died shortly after the operation, either from collapse or peritonitis; of the 18 remaining patients 6 more died from the following causes: 3 from infection of the wound, 2 from intercurrent diseases and 1 of inanition. This gives a death rate of 16 in 28 cases, or 57 per cent. According to Riegel and Henel, the death rate after any form of treatment of the gangrenous gut ranges from 52 to 54.2 per cent. Hahn states that taking everything into consideration the results are better in primary resection and suture of the intestine than in attempting to form an artificial anus, and its subsequent treatment.

According to Schmidt, death after herniotomy with resection of gangrenous gut occurs in 71 per cent of cases, whereas after attempting to form an artificial anus it occurs in 85.5 per cent of cases.

The closure of the artificial anus by secondary resection and suture of the intestine gives a death rate of 37.8 per cent, while the treatment by the enterotome and the subsequent plastic operations gives a mortality ranging from 5.1 to 9.9 per cent.

What form of treatment of the gangrenous gut offers the best chance for the patient? According to Schmidt and Hahn, there is a slight balance in favor of primary resection and suture.

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